In [1]:
```
import numpy as np
import math116
```

In [2]:
```
n_13=679787784628977803719246221827067797
e_13=65537
c_13=519510187890701360643892801009368951
p_13=321923906457251617
q_13=2111641201518679541
phi_n_13=(p_13-1)*(q_13-1)
```

In [5]:
```
d_13=math116.inverse(e_13,phi_n_13)
```

In [6]:
```
m_13=pow(c_13,d_13,n_13)
m_13
```

Out[6]:
```
601032015180914070919080118O4
```

In [7]:
```
n_14=75007546158669172138834747933567685128243123229236619132O759
e_14=65537
d_14=56440211350361041165364553757227358352262706872939207676739З
```

In [8]:
```
E_14=e_14*d_14-1
```

In [9]:
```
k_14=0
q_14=E_14
while q_14%2==0:
    q_14//=2
    k_14+=1
```

In [17]:
```
a_0=pow(7,q_14,n_14)
for i in range(k_14):
    if pow(a_0,2,n_14)==1:
        print(math116.gcd(a_0-1,n_14))
        break
    a_0=pow(a_0,2,n_14)
```

```
835338435834994481423891073871
```

In [18]:
```
n_14//835338435834994481423891073871
```

Out[18]:
```
897930023819537415148640533529
```

In [19]:
```
n_15=21397381
```

In [23]:
```
pow(7,n_15-1,n_15)
```

Out[23]:
```
10334100
```

In [24]:
```
n_16=1750412161
```

In [25]:
```
pow(2,n_16-1,n_16)
```

Out[25]:
```
1
```

In [26]:
```
pow(3,n_16-1,n_16)
```

Out[26]:
```
1
```

In [27]:
```
k_16=0
q_16=n_16-1
while q_16%2==0:
    q_16//=2
    k_16+=1
```

In [29]:
```
a_0_3=pow(3,q_16,n_16)
```

In [32]:
```
a_0_2=pow(2,q_16,n_16)
for i in range(k_16):
    if pow(a_0_2,2,n_16)==n_16-1:
        break
    elif pow(a_0_2,2,n_16)==1:
        print(math116.gcd(a_0_2-1,n_16))
        break
    a_0_2=pow(a_0_2,2,n_16)
```

In [33]:
```
a_0_3=pow(3,q_16,n_16)
for i in range(k_16):
    if pow(a_0_3,2,n_16)==n_16-1:
        break
    elif pow(a_0_3,2,n_16)==1:
        print(math116.gcd(a_0_3-1,n_16))
        break
    a_0_3=pow(a_0_3,2,n_16)
```

```
520801
```

In [34]:
```
n_16//520801
```

Out[34]:
```
3361
```

In [ ]:
```

```